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Paradoxical side effects of green advertising: how purchasing green products may instigate licensing effects for consumers with a weak environmental identity

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ABSTRACT

Research into green advertising has mainly investigated how green appeals can enhance product attitudes, sales, and brand image. But what happens *after* people have purchased a ‘green’ product advertised in a green ad? In two experiments, we show that purchasing a green product may have paradoxical post-purchase effects, such that it may lower intentions to engage in subsequent environmentally friendly behaviour (a so-called licensing effect). Importantly, our results show that these post-purchase effects are moderated by environmental identity: only people with a weak environmental identity show these paradoxical post-purchase licensing effects, people with a strong environmental identity are more likely to continue behaving in an environmentally friendly way.

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Environmental problems such as contaminated ecosystems and climate change are posing an increasing threat to our environment (Asia et al. 2007; Rosenfeld et al. 2008). The idea that action must occur to protect the environment has been embraced by different stakeholders, such as companies and consumers (Olsen et al. 2014). This increased environmental interest is, for example, reflected in the production of green products and the efforts of companies to make their business more environmentally friendly. Patagonia, for example, is well-known for its environmental efforts. Also other companies are taking steps to green their brands. For example, H&M advertises its green clothing line and Coca-Cola advertises its plant bottles that are partially composed of plants and completely recyclable.

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As a result of the increased interest in environmental friendliness by companies and consumers, the use of green advertising has also increased (Leonidou et al. 2011). Generally, research into green advertising shows that consumers appreciate green advertising and that it benefits the company (e.g., Kong and Zhang 2013; Olsen et al. 2014; Schuhwerk and Lefkoff-Hagius 1995; Tucker et al. 2012). The question, however, is whether the environment also benefits. Green advertising may stimulate green consumption, which may be more beneficial for the environment compared with conventional (non-green) consumption, but there are reasons to predict that this green consumption may subsequently decrease the likelihood of succeeding green behaviours.

That is, research on the licensing effect (Monin and Miller 2001) suggests that green consumption behaviour may lead to less environmental behaviours post-purchase. In contrast, however, research on the consistency effect suggests that green consumption behaviour may lead to subsequent more post-purchase environmental behaviours (e.g., Freedman and Fraser 1966; Gawronski and Strack 2012). So far, it is unclear when licensing and when consistency effects arise. Therefore, this article investigates when licensing effects and when consistency effects are more likely after purchasing a product advertised as green, by investigating environmental identity as a moderator. Two experimental studies show that green advertising may have paradoxical side effects, such that purchasing a product promoted via a green advertisement may, in fact, lower subsequent environmental concerns and intentions. However, this effect only occurs for people with a weak environmental identity.

The contribution of our article is threefold. First, this article is the first to make the link between green advertising and licensing effects. That is, we show that green advertising may have negative post-purchase effects when people purchase a product advertised in such a green advertisement as people may subsequently report lower environmental concerns and behavioural intentions – but only for those consumers with a weak environmental identity. Second, uncovering environmental identity as a moderator of licensing effects may provide a starting point for practical interventions to remedy this issue, for example, by using the social labelling technique in green advertising (Allen 1982). Third, by revealing environmental identity as a moderator for expecting licensing versus consistency effects, we contribute to theory on identity, licensing versus consistency effects, and green advertising.

Furthermore, our results are interesting for an international audience. The licensing effect has been demonstrated in countries such as the US (Monin and Miller 2001), France (Clot et al. 2013), Canada (Mazar and Zhong 2010), Madagascar (Clot et al. 2014), Uruguay (Brañas-Garza et al. 2013), and, in this case, the Netherlands. These findings, that purchasing a product advertised as green may instigate licensing effects (e.g., has negative post-purchase effects), are thus likely to arise in countries around the globe as it constitutes a general mechanism.

Green advertising

Green advertising can be defined as commercial ('paid for') communication emphasizing the environmentally friendly attributes of the company, products, and/or services, which can be placed in different channels, such as print media, company websites,

and TV (Banerjee et al. 1995; Schuhwerk and Lefkoff-Hagius 1995). Simultaneous with the increase in green advertising, the interest in research into this type of advertising has also increased. Research into green advertising has mainly investigated what kind of green appeals people prefer (e.g., Atkinson and Rosenthal 2014; Chang 2012; Chang et al. 2015; Green and Pelozo 2014; Hartmann and Apaolaza-Ibáñez 2008; Kareklas et al. 2014). It is also investigated whether products with a green appeal are preferred over products with a non-green appeal (e.g., Atkinson and Rosenthal 2014; Kareklas et al. 2012; Kareklas et al. 2014; Kong and Zhang 2013; Steinhart et al. 2013; Tucker et al. 2012), with most research showing positive effects of green appeals on advertisement effectiveness (e.g., Kong and Zhang 2013; Matthes et al. 2014; Schuhwerk and Lefkoff-Hagius 1995; Tucker et al. 2012; but see Bickart and Ruth 2012; Grimmer and Woolley 2014; Kareklas et al. 2012).

Furthermore, it is often investigated why people prefer green advertising over non-green advertising (see also Kong and Zhang 2014). One reason is that purchasing a green product makes people feel good about themselves. Purchasing a green product is often seen as a moral thing to do as people help the environment (Bratanova et al. 2012; Mazar and Zhong 2010). Therefore, purchasing a green product may provide people with a 'warm glow', similar to behaving morally in other ways (Andreoni 1990; Hartmann et al. 2005). In this way, purchasing green products may help people to confirm the desired view of themselves as being a good person (see also Grimmer and Woolley 2014). A second reason for purchasing green products is that it has a symbolic function as it may reflect people's ideology (Hartmann et al. 2005; Kong and Zhang 2014). Purchasing green products may thus also help to express people's environmental identity.

In sum, ample research has shown that people often prefer green advertising over non-green advertising. In contrast, what happens *after* people have purchased a product advertised as green has been hardly investigated. Does purchasing a product advertised as green increase the intentions to behave in an environmentally friendly way (i.e., a consistency effect)? Or could it be the case that purchasing a product advertised as green subsequently *lowers* the intentions to behave in an environmentally friendly way (i.e., a licensing effect; Monin and Miller 2001)?

On the one hand, there is a body of research suggesting that consistency effects are likely, such that purchasing green products increases the chance that people will behave in an environmentally friendly way again (e.g., Freedman and Fraser 1966; Gawronski and Strack 2012; Steele 1988). On the other hand, recent research suggests that licensing effects are likely, such that purchasing green products may paradoxically lead consumers to behave in a *less* environmentally friendly way in subsequent situations (e.g., Mazar and Zhong 2010; Monin and Miller 2001; Sachdeva et al. 2009). After consumers behaved in an environmentally friendly way, they might have been 'green and good enough for now' and subsequently may have lower environmental concerns and behavioural intentions.

Licensing versus consistency

The licensing effect entails that engaging in a moral act makes people subsequently more likely to engage in a less moral act (e.g., Khan and Dhar 2006; Mazar and Zhong

2010; Merritt et al. 2010; Miller and Effron 2010; Monin and Miller 2001; Sachdeva et al. 2009). One of the assumed mechanisms underlying these licensing effects is that the first moral behaviour provides people with moral credits which boost their moral self-regard. This subsequently 'frees' them to behave less morally (Khan and Dhar 2006; Miller and Effron 2010). In line with this, research shows that boosting one's moral self-regard by recalling moral behaviours performed in the past leads to less moral behaviour in the present. For example, recalling moral behaviours resulted in donating less money to charity (Sachdeva et al. 2009), more cheating behaviour on a math task (Jordan et al. 2011), and a lower intention to volunteer (Conway and Peetz 2012).

Research shows that these licensing effects may arise within one domain, for example, when people are given the chance to disagree with sexist statements, they are afterward more likely to make more sexist choices (Monin and Miller 2001) and when people behave in a non-racist way, they subsequently may be more likely to behave in a racist way (Effron et al. 2009). However, these licensing effects also arise across moral domains, for example, when people imagine donating money to charity they are subsequently more likely to cheat on a math task (Brown et al. 2011) and when people have been hard-working they are subsequently more likely to eat snacks (De Witt Huberts et al. 2012).

Of importance to the current topic is that the licensing effect has also been demonstrated in the environmental domain, as environmentally friendly behaviour is often perceived as moral behaviour (Mazar and Zhong 2010). These licensing effects are also demonstrated both within the domain of environmental friendliness and across domains (i.e., from the environmental domain into another domain or the other way around). Within the environmental domain, Tiefenbeck et al. (2013), for example, showed that consumers felt licensed to increase their electricity consumption after lowering their water consumption. Across moral domains, Meijers et al. (2015) showed that donating to charity may lower environmental intentions and Mazar and Zhong (2010) showed that purchasing green products may lead to sharing less money with others. Research on the licensing effect thus shows that behaving in a moral (e.g., environmentally friendly) manner may provide people with a license to behave in a less moral (e.g., less environmentally friendly) manner.

Based on research into the licensing effect, it could thus be the case that purchasing a product that is advertised as green, paradoxically, leads to environmentally unfriendly post-purchase effects. The 'warm glow' that people may experience after purchasing a green product may thus be a double-edged sword. On the one hand, people may prefer green products because of the warm glow they experience when purchasing such products (Andreoni 1990; Hartmann et al. 2005). On the other hand, this same warm glow may cause licensing effects (i.e., environmentally unfriendly post-purchase effects).

However, interestingly, this licensing effect goes against an extensive body of research showing that the opposite of licensing effects may be just as likely: after purchasing a green product, people may feel compelled to behave consistently and therefore also behave in an environmentally friendly manner in subsequent decisions (e.g., Freedman and Fraser 1966; Gawronski and Strack 2012; Steele 1988). For example,

self-affirmation theory posits that people want to view themselves as being moral (Steele 1988), making continued environmentally friendly decisions more rather than less likely. In addition, cognitive dissonance theory (Festinger 1957), the foot-in-the-door principle (Freedman and Fraser 1966), and self-perception theory (Bem 1967) all underline that people want to appear *consistent*.

That is, cognitive dissonance theory (Festinger 1957) proposes that inconsistencies in one's beliefs, values, and/or behaviours lead to an aversive state of arousal. Behaving environmentally friendly once, but not the second time, may thus instigate such negative arousal. This is a feeling that people want to prevent, therefore, making consistent environmentally friendly behaviour more likely. Similarly, self-perception theory posits that when people perceive their own behaviour, they see this as reflective of their attitudes and beliefs, making the subsequent behaviour more likely to be aligned with the initial behaviour (Bem 1967). So, for example, after purchasing an environmentally friendly product, people may (temporarily) see themselves as an environmentally friendly person, making subsequent environmentally friendly behaviours more likely. In sum, there is thus ample research suggesting that purchasing a green product may increase the chance of purchasing another green product. The question is, when licensing and when consistency effects are more likely – a question that, so far, remains unanswered.

We propose that an important determinant for whether licensing or consistency effects occur is people's environmental identity. Following the example of how decreasing water consumption leads to increasing electricity consumption (Tiefenbeck et al. 2013), we expect that consumers will not feel licensed to increase their electricity consumption when they have a strong environmental identity as this would be inconsistent with their identity. In contrast, people with a weak environmental identity might feel they have been environmentally friendly enough for now, therefore, feeling licensed to increase their electricity consumption.

The role of identity

Identity is understood as the way individuals see themselves and the labels they use to describe themselves (e.g., Markus and Zajonc 1985; Tajfel and Turner 1986; Whitmarsh and O'Neill 2010). By behaving in an identity-congruent manner people show themselves and others who they are. Therefore, identity typically influences behaviour (Bem 1967; Eagly and Chaiken 1993; Taylor 1975). People, for example, are more likely to behave morally when their moral identity is salient (Aquino et al. 2009), and they are more likely to consume ethical, fair trade products when they strongly identify as ethical (Ozcaglar-Toulouse et al. 2006). Additionally, people who are forced to behave incongruently to their identity are known to compensate for this later on (Verplanken and Holland 2002). Identity thus drives consumer behaviours resulting in people behaving in an identity congruent manner (Bem 1967; Erikson 1964; Markus and Zajonc 1985). Similarly, purchasing green products may for some consumers be motivated by wanting to express their environmental identity (Hartmann et al. 2005; Kong and Zhang 2014).

Combining this identity-congruency perspective with the theory concerning licensing results in the prediction that licensing effects are unlikely after purchasing a green product for consumers with a strong environmental identity. The assumption behind the licensing effect is that having established moral credits frees people to behave in morally questionable manners (e.g., Miller and Effron 2010; Monin and Miller 2001). It is unlikely, however, that green consumers would want to behave incongruently to their identity after behaving green. Indeed, research suggests that when a trait such as morality is valued by people, they strongly believe in being a moral person and they want to maintain this idea (Kunda 1987; Mazar et al. 2008; Sanitioso et al. 1990). Similarly, research suggests that people act consistently with their identity because having a certain identity creates the need to be true to oneself (Erikson 1964; Reynolds and Ceranic 2007). This suggests that consumers with a strong environmental identity will not feel licensed after purchasing a green product, as they want to see themselves as a green person. Therefore, it is hypothesized as follows.

Hypothesis

Purchasing products advertised in green advertising (compared with products advertised in non-green advertising) will lead to licensing effects, but only for consumers with a weak environmental identity - not for consumers with a strong environmental identity.

Study 1

Study 1 tested whether people may feel licensed to behave in an environmentally unfriendly manner after purchasing a product advertised as green, but only when it concerns consumers with a weak environmental identity. We expected participants with a strong environmental identity to show a consistency effect. In this study, we measured environmental identity 2 weeks before the laboratory study took place and used a manipulation consisting of actual purchasing behaviour.

Method

Participants and design

Eighty-seven university students ($M_{\text{age}} = 22.11$ years, $SD_{\text{age}} = 5.45$, 74.7% female) participated in exchange for course credit and the chance of winning the outfit that they chose during the experiment (i.e., one person was randomly chosen and got a voucher to purchase the outfit they chose). Participants were randomly assigned to one of the two conditions (advertising: non-green and green)¹ of a between-subjects design (green advertising: $M_{\text{age}} = 22.34$, $SD_{\text{age}} = 1.76$, 76.3% female; non-green advertising: $M_{\text{age}} = 21.64$, $SD_{\text{age}} = 1.71$, 71.4% female).

Procedure

Two weeks before the study was run in the laboratory, participants who signed up for the experiment were asked to complete an online questionnaire to assess their

environmental identity. Participants completed six items concerning the type of person they are: *I am willing to sign a petition to support an environmental cause*, *I am not considering joining a group or club which is concerned with the environment* (R), *I am not willing to pay more taxes such that the government can do more against environmental pollution* (R), *I am willing to pay more each month for electricity if it meant cleaner air*, *I am not willing to boycott a brand that is known to pollute the environment during production* (R), *I am willing to make personal sacrifices for the sake of slowing down pollution even though the immediate results may not seem significant* measured on a scale from 1 (*completely disagree*) to 7 (*completely agree*) as a measure of environmental identity (Cronbach's $\alpha = 0.81$; Clayton 2003; Minton and Rose 1997).

For the actual experiment 2 weeks later, participants came to the laboratory and were individually seated in cubicles. Participants ostensibly participated in a series of unrelated studies on a personal computer. We thus made use of a so-called unrelated task paradigm (Higgins et al. 1977), such that participants were less likely to be aware of the actual purpose of the study, as such preventing priming and experimenter demand effects. Participants first completed a task that was allegedly on online shopping. Our manipulation of green advertising consisted of visiting a green or non-green webshop. Participants were asked to purchase an outfit for a night out on a mockup website of a large well-known apparel chain (H&M) for about €100 (based on Mazar and Zhong 2010). The webshops were built especially for the purpose of this study and participants could navigate the websites in their search for an outfit. After the participants in the experiment had purchased their outfit, the experimenter wrote down which items participants purchased and the participants completed a filler questionnaire on their opinion regarding the website to keep up the appearance of the alleged goal of the experiment. Hereafter, participants completed an allegedly unrelated survey concerning the environment, in which the dependent measure environmental concern was measured. Finally, participants were thanked for their participation and fully debriefed on the nature of the experiment and the website.

Materials. The mockup H&M website had a simple and minimalistic, yet professional design (in-line with the Scandinavian design movement). It featured the H&M logo and the colours of the brand (red and white). There was a page with clothing for women and one for men. Within these, there were multiple clothing categories, such as tops (e.g., shirts and blouses) and bottoms (e.g., pants and skirts). Participants could click on all items and were then provided with a description of the clothing items. In the non-green advertising condition, the apparel was advertised with non-green attributes (e.g., fabric and fit) and in the green advertising condition, the same apparel was advertised as being made of organic cotton using different cues to indicate the green nature. Thus, the non-green and green websites offered the exact same apparel, the only difference was that in the green advertising condition, information concerning green attributes of the products were added.

We tested whether the websites used were actually seen as green versus non-green on a separate sample of 40 participants ($M_{\text{age}} = 20.31$, $SD_{\text{age}} = 1.92$, 77.6% female). They were randomly assigned to one of the two conditions (advertising: non-green and green)¹ of a between-subjects design. After participants viewed the non-green or

green webshop, they were asked 'To what extent do you perceive the advertisement to be "green" – that is, focused on the environment and sustainability?' on a scale from 1 (not green) to 7 (green) and 'To what extent would you consider buying this product an environmentally friendly act?', on a scale from 1 (environmentally unfriendly act) to 7 (environmentally friendly act). Results showed that participants in the green advertising condition perceived the website to be greener ($M = 5.23$, $SD = 1.37$) than participants in the non-green advertising condition ($M = 2.57$, $SD = 1.22$, $t(38) = -6.09$, $p < .001$, Cohen's $d = 2.05$, $CI [-3.54; -1.77]$). Furthermore, participants in the green advertising condition considered purchasing the products as an environmentally friendlier act ($M = 4.92$, $SD = 1.49$) than participants in the non-green advertising condition ($M = 2.93$, $SD = 1.33$, $t(38) = -4.18$, $p < .001$, Cohen's $d = 1.41$, $CI [-2.96; -1.03]$). The advertisements were thus seen in line with how we intended them.²

Dependent measure. We measured participant's environmental concern on a 7-point scale using 13 items: *We are not doing enough to save scarce natural resources (such as fossil fuel) from being used up*, *We must preserve natural resources even if people must do without some products*, *I feel sorry that the government does not do more to help control the pollution of the environment*, *Much more fuss is being made about air and water pollution than is really justified* (R), *I feel angry and frustrated when I think about the harm being done to plant and animal life by pollution*, *It is important that the government devotes more money toward protecting the environment*, *It is not the task of the consumer to undertake action concerning environmental problems* (R), *I support the idea of taxing non-recyclable containers so to reduce waste*, *I believe that consumers should pay higher prices for products which pollute the environment*, *The government should subsidize research on technology for recycling waste products*, *Manufacturers should be required to use recycled materials in their operations whenever possible*, *Commercial advertising should be required to mention the environmental disadvantages of products*, *I believe that schools should be required to devote attention to environmental issues* (Cronbach's $\alpha = 0.89$; based on Minton and Rose 1997).³

Results and discussion

First, preliminary analyses were performed to ensure the assumptions were not violated. There were no issues pertaining multicollinearity (correlation between the independent variables; $r = -0.15$, tolerance = 0.98), normality (environmental identity; skewness = 0.17, kurtosis = 0.22; environmental concern; skewness = -0.09 , kurtosis = 0.81), linearity (linearity: $F(1,37) = 28.25$, $p < .001$; deviation from linearity: $F(20,37) = 0.71$, $p = .796$), or homoscedasticity (Levene's test: $F = 1.75$, $p = .190$). Then, to test our hypothesis that green advertising could have negative post-purchase effects when people with a weak environmental identity purchased green apparel, we performed a moderation analysis using a bootstrapping analysis with 5000 samples (using Model 1 of PROCESS, Hayes 2013). We used environmental concern as the dependent variable and non-green (coded as 0) versus green (coded as 1) advertising, environmental identity, and their interaction as predictors. The bootstrapping analysis revealed a significant interaction between advertising and environmental identity on the environmental concern measure ($b = 0.45$, $se = 0.16$, $t(83) = 2.81$, $p = .006$, 95% confidence

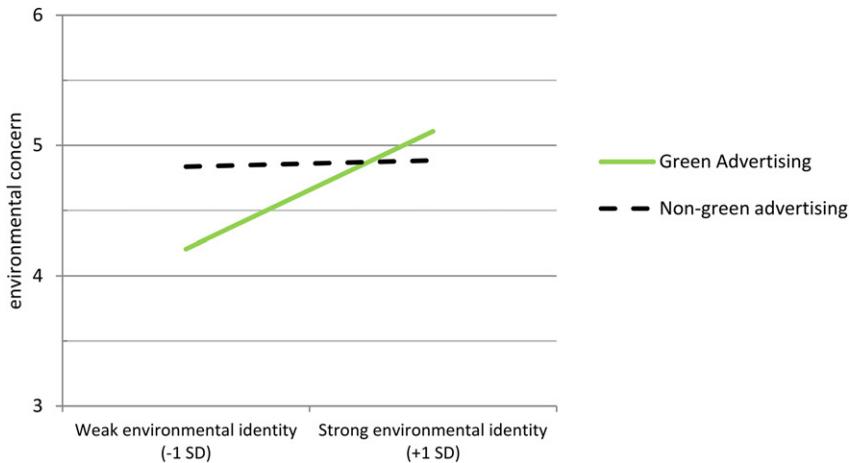


Figure 1. Study 1 results – environmental concern. Figure showing the interaction effect of purchasing a product advertised by a non-green or green ad and individual difference in environmental identity on environmental concern (1–7) in Study 1.

interval [0.1315; 0.7705]) and a main effect of advertising ($b = -1.93$, $se = 0.66$, $t(83) = -2.93$, $p = .004$, 95% confidence interval [-3.2434; -0.622]). There was no main effect of environmental identity ($b = 0.07$, $se = 0.13$, $t(83) = 0.50$, $p = .619$, 95% confidence interval [-0.1985; 0.3312]).

PROCESS also allowed for further probing of the moderating effect of environmental identity on the relationship between green versus non-green advertising and environmental concern by conducting a spotlight analysis at one standard deviation below (labelled *weak* environmental identity) and above (labelled *strong* environmental identity) the mean (Figure 1). The analysis supported our hypothesis that only consumers with a weak environmental identity show a licensing effect. That is, participants with a weak environmental identity reported lower environmental concern after purchasing apparel advertised in a green advertisement than after purchasing apparel advertised in a non-green advertisement ($b = -0.70$, $se = 0.26$, $t(83) = -2.67$, $p = .009$, 95% confidence interval [-1.2249; -0.1790]). In contrast, people with a strong environmental identity were just as likely to report environmental concern after purchasing apparel advertised in a green advertisement as after purchasing apparel advertised in a non-green advertisement ($b = 0.29$, $se = 0.24$, $t(83) = 1.24$, $p = .220$ [-0.1760; 0.7536]). Based on the results of the floodlight analysis (Johnson and Neyman 1936; Table 1), it even seems to be the case that for participants with a (very) strong environmental identity, purchasing apparel advertised in a green advertisement, led to reporting a higher environmental concern. We discuss this in more detail in the General discussion section.

Study 2

In Study 2, we aimed to conceptually replicate the finding that green advertising may have paradoxically post-purchase effects for people with a weak environmental identity. In this second experimental study, we used a different manipulation, a different

Table 1. Conditional effects of non-green versus green advertising on environmental concern at values of the moderator environmental identity in Study 1 based on a floodlight analysis (Johnson and Neyman 1936) via PROCESS Model 1 (Hayes 2013).

Environmental identity	Effect	Se	t	p	LLCI	ULCI
1.00	-1.48	0.51	-2.93	.004	-2.4878	-0.4760
1.28	-1.36	0.46	-2.92	.005	-2.2817	-0.4339
1.55	-1.23	0.42	-2.91	.005	-2.0769	-0.3907
1.83	-1.11	0.38	-2.89	.005	-1.8736	-0.3459
2.10	-0.99	0.35	-2.86	.005	-1.6724	-0.2991
2.38	-0.86	0.31	-2.80	.006	-1.4741	-0.2493
2.65	-0.74	0.27	-2.71	.008	-1.2799	-0.1955
2.93	-0.61	0.24	-2.55	.013	-1.0916	-0.1357
3.20	-0.49	0.21	-2.31	.024	-0.9118	-0.0674
3.43	-0.38	0.19	-1.99	.050	-0.7690	0.0000
3.48	-0.37	0.19	-1.92	.058	-0.7445	0.0133
3.75	-0.24	0.18	-1.36	.177	-0.5941	0.1109
4.03	-0.12	0.17	-0.67	.502	-0.4646	0.2295
4.30	0.01	0.18	0.04	.972	-0.3569	0.3699
4.58	0.13	0.20	0.65	.517	-0.2684	0.5294
4.85	0.25	0.23	1.13	.263	-0.1944	0.7036
5.13	0.38	0.26	1.48	.143	-0.1309	0.8880
5.40	0.50	0.29	1.73	.087	-0.0744	1.0796
5.68	0.63	0.33	1.92	.058	-0.0228	1.2761
5.80	0.68	0.34	1.99	.050	0.0000	1.3687
5.95	0.75	0.36	2.06	.043	0.0254	1.4759
6.23	0.87	0.40	2.17	.033	0.0711	1.6783
6.50	1.00	0.44	2.25	.027	0.1151	1.8824

dependent measure (i.e., behavioural intentions), and a different measure for environmental identity, so to enhance the validity and robustness of our findings (Koole and Lakens 2012; Stroebe and Strack 2014).

Method

Participants and design

Seventy participants ($M_{\text{age}} = 22.57$, $SD_{\text{age}} = 3.18$, 70.0% female) were recruited using snowball sampling and were invited via e-mail to take part in an online study. They were randomly assigned to one of the two conditions (advertising: non-green and green)¹ of a between-subjects design (non-green advertising: $M_{\text{age}} = 21.45$, $SD_{\text{age}} = 2.13$, 77.3% female; green advertising: $M_{\text{age}} = 23.15$, $SD_{\text{age}} = 3.46$, 68.1% female). One outlier was detected in the control condition (based on Cook's distance) and therefore omitted from the analyses.

Procedure

We once more used an unrelated task paradigm (Higgins et al. 1977), in which participants completed a number of ostensibly unrelated tasks. To enhance the validity and robustness of our claims, we operationalized environmental identity in a different way than in Study 1. We first measured participants' environmental identity by asking them to rate five items: *I am concerned with environmental issues*, *I value being an environmentally friendly person*, *I think it is important that others see me as an environmental person*, *I rather purchase environmentally friendly than environmentally unfriendly*

products, and *In everyday life I strive to behave in an environmentally friendly way* on a scale from 1 (*completely disagree*) to 7 (*completely agree*; Cronbach's $\alpha = 0.84$, based on Sparks and Shepherd 1992; Whitmarsh and O'Neill 2010). Then participants completed a filler task on everyday behaviours like exercising, doing paperwork, and eating healthily.

Next, participants completed a task that was allegedly on the effectiveness of ads, with which we manipulated whether participants saw a non-green or green advertisement. Participants were asked to take their time to view an advertisement for sneakers of a well-known brand (Nike) and imagine purchasing the sneakers being advertised. After participants viewed the ads and imagined having bought the shoes, they were asked to complete the questionnaire regarding environmentally friendly behavioural intentions. Finally, participants were thanked for their participation and fully debriefed.

Materials. We designed ads for Nike sneakers. Sneakers were chosen as they are used by people with varying demographic characteristics (e.g., female/male; Jun et al. 2015). The ads were identical; they had a light grey background and a slick design, plus they featured a slogan in a black 'urban' font and a pair of dark green (low blazer) Nike sneakers. The only difference was the information concerning environmental friendliness. In the non-green advertising condition, the slogan emphasized the comfort of the sneakers. In the green advertising condition, the organic and environmentally friendly nature was emphasized. Participants were asked to imagine that they had purchased the sneakers in the advertisement (i.e., a common way to induce licensing effects; Khan and Dhar 2006).

Similar to Study 1, we tested whether the advertisements used in Study 2 were indeed seen as non-green versus green on a separate sample of 49 participants ($M_{\text{age}} = 20.31$, $SD_{\text{age}} = 1.92$, 77.6% female). Participants were randomly assigned to one of the two conditions (advertising: non-green and green)¹ of a between-subjects design. After participants viewed the non-green or green advertisement, they were asked the same questions as in Study 1. As expected, participants perceived the advertisement to be greener in the green advertising condition ($M = 4.78$, $SD = 1.50$) than participants in the non-green advertising condition ($M = 1.71$, $SD = 1.21$, $t(47) = -7.29$, $p < .001$, Cohen's $d = 2.25$, CI [-3.92; -2.23]). Furthermore, participants in the green advertising condition considered purchasing the sneakers in the advertisement as an environmentally friendlier act ($M = 4.00$, $SD = 1.37$) than participants in the non-green advertising condition ($M = 2.41$, $SD = 1.54$, $t(47) = -3.70$, $p = .001$, Cohen's $d = 1.09$, CI [-2.45; -0.72]). The advertisements were thus seen in line with how we intended them.²

Dependent measures. The behavioural intentions were measured by using seven items: *I would be willing to sign a petition to support an environmental cause*, *I would be willing to pay more taxes to support greater government control of the sustainability of companies and products*, *I would be willing to pay more each month for electricity if it meant cleaner air*, *I would be willing to stop buying products from companies guilty of not behaving in an environmental manner even though it might be inconvenient for me*, *I would be willing to make an effort for the sake of the environment even though the*

immediate results may not seem significant, I would be willing to consume less meat for the sake of the environment, I would be not willing to boycott a brand that is known to pollute the environment during production (R) measured on a scale from 1 (completely disagree) to 7 (completely agree, Cronbach's $\alpha = 0.67$, based on Minton and Rose 1997).

Results and discussion

First, preliminary analyses were performed to ensure the assumptions were not violated. There were no issues concerning multicollinearity (correlation between the independent variables; $r = -0.19$, tolerance = 0.97), normality (environmental identity; skewness = -0.86 , kurtosis = 0.46; behavioural intentions; skewness = -0.13 , kurtosis = -0.23), linearity (linearity: $F(1,49) = 31.97$, $p < .001$; deviation from linearity: $F(18,49) = 0.90$, $p = .584$), or homoscedasticity (Levene's test: $F = 0.01$, $p = .932$). Next, to test our hypothesis that purchasing products advertised via green advertising could have negative post-purchase effects for people with a weak environmental identity, we performed a moderation analysis using a bootstrapping analysis with 5000 samples (using Model 1, Hayes 2013). We used environmentally friendly behavioural intentions as the dependent variable and non-green (coded as 0) versus green (coded as 1) advertising, environmental identity, and their interaction as predictors. The bootstrapping analysis revealed a significant interaction between advertising and environmental identity on the environmentally friendly behavioural intentions measures ($b = 0.45$, $se = 0.21$, $t(65) = 2.17$, $p = .033$, 95% confidence interval [0.0367; 0.8674]) and a significant main effect of advertising ($b = -2.58$, $se = 1.04$, $t(65) = -2.49$, $p = .016$, 95% confidence interval [-4.6505 ; -0.5076]). The main effect of environmental identity was not significant ($b = 0.09$, $se = 0.19$, $t(65) = 0.48$, $p = .635$, 95% confidence interval [-0.2827 ; 0.4598]).

Then, we tested the moderating effect of environmental identity on the relationship between non-green versus green advertising and environmentally friendly behavioural intentions by conducting the same spotlight analysis as in Study 1, at one standard deviation below (labelled *weak* environmental identity) and above (labelled *strong* environmental identity) the mean (Figure 2). The analysis supported our hypothesis that only consumers with a weak environmental identity show a licensing effect. That is, participants with a weak environmental identity were less likely to report environmentally friendly behavioural intentions after imagining purchasing green shoes than after imagining purchasing non-green shoes ($b = -0.95$, $se = 0.33$, $t(65) = -2.88$, $p = .005$, 95% confidence interval [-1.6144 ; -0.2929]). In contrast, participants with a stronger environmental identity were just as likely to report environmentally friendly behavioural intentions after imagining purchasing shoes advertised in a green advertisement as after imagining purchasing shoes advertised in a non-green advertisement ($b < 0.01$, $se = 0.25$, $t(65) = 0.02$, $p = .987$, 95% confidence interval [-0.5001 ; 0.5082]). For the results of the floodlight analysis (Johnson and Neyman 1936), Table 2.

Taken together, the two studies indicate that consumers with a weak environmental identity are likely to show environmental licensing effects after (imagining) purchasing a product advertised as green, whereas consumers with a strong environmental identity are more likely to show consistency effects. This supports the

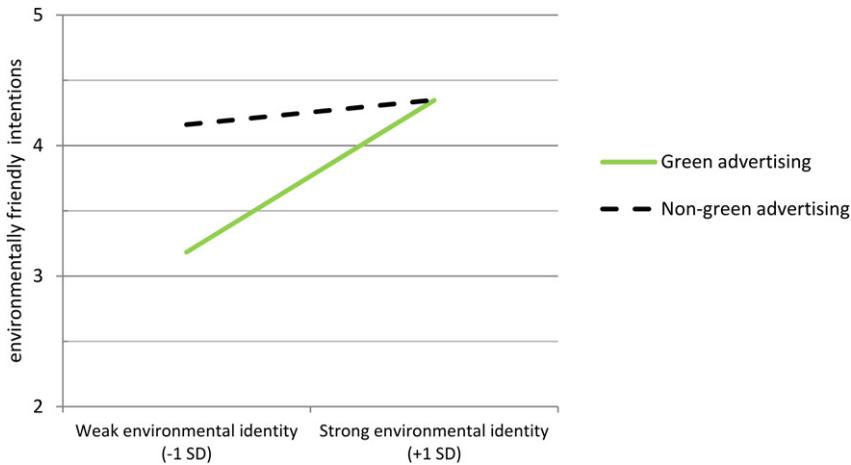


Figure 2. Study 2 results – behavioural intentions. Figure showing the interaction effect of imagining purchasing a product advertised by a non-green or green ad and individual difference in environmental identity on environmentally friendly behavioural intentions (1–7) in Study 2.

Table 2. Conditional effects of non-green versus green advertising on behavioural intentions at values of the moderator environmental identity in Study 2 based on a floodlight analysis (Johnson and Neyman 1936) via PROCESS Model 1 (Hayes 2013).

Environmental identity	Effect	Se	<i>t</i>	<i>p</i>	LLCI	ULCI
1.20	-2.00	0.80	-2.50	.015	-3.5959	-0.4008
1.44	-1.89	0.75	-2.52	.014	-3.3939	-0.3950
1.68	-1.79	0.70	-2.55	.013	-3.1924	-0.3887
1.92	-1.69	0.65	-2.58	.012	-2.9915	-0.3818
2.16	-1.58	0.60	-2.62	.011	-2.7913	-0.3742
2.40	-1.48	0.56	-2.65	.010	-2.5920	-0.3657
2.64	-1.38	0.51	-2.70	.009	-2.3938	-0.3561
2.88	-1.27	0.46	-2.74	.008	-2.1972	-0.3449
3.12	-1.17	0.42	-2.79	.007	-2.0026	-0.3318
3.36	-1.06	0.37	-2.84	.006	-1.8107	-0.3158
3.60	-0.96	0.33	-2.89	.005	-1.6227	-0.2961
3.84	-0.86	0.29	-2.92	.005	-1.4402	-0.2708
4.08	-0.75	0.26	-2.92	.005	-1.2657	-0.2374
4.32	-0.65	0.23	-2.84	.006	-1.1031	-0.1923
4.56	-0.54	0.21	-2.63	.011	-0.9573	-0.1303
4.80	-0.44	0.20	-2.23	.029	-0.8337	-0.0460
4.91	-0.39	0.20	-2.00	.050	-0.7866	0.0000
5.04	-0.34	0.20	-1.68	.098	-0.7358	0.0638
5.28	-0.23	0.22	-1.08	.285	-0.6624	0.1982
5.52	-0.13	0.24	-0.53	.596	-0.6088	0.3524
5.76	-0.02	0.27	-0.09	.929	-0.5696	0.5210
6.00	0.08	0.31	0.26	.798	-0.5404	0.6996

hypothesis that green advertising may have negative post-purchase effects when purchasing the product advertised, yet only for consumers with a weak environmental identity.

General discussion

Our studies indicate that purchasing products advertised as green may have paradoxical post-purchase effects, at least for those consumers with a weak environmental

identity. Participants in our studies reported that they felt licensed to be environmentally unfriendly (i.e., reported lower environmental concern and environmentally friendly behavioural intentions) when they (imagined) purchasing green (versus non-green) variants of the same products. Importantly, this effect was, as expected, moderated by environmental identity: consumers with a strong environmental identity did not show such a licensing effect but instead continued to report having environmental concerns and intentions. These results are consistent across the two experiments.

In Study 1, we measured participants' environmental identity 2 weeks before coming to the laboratory to participate in the study. The study showed that when participants purchased an outfit on a website that advertised green clothing, this subsequently led to lower environmental concerns compared with purchasing an outfit on a website advertising conventional (non-green) clothing, however, only for participants with a weak environmental identity. In contrast, participants with a strong environmental identity were unlikely to feel licensed. In Study 2, we conceptually replicated this finding while using a different measure for environmental identity, a different dependent variable, and a different manipulation, in this way showing that the results do not depend on a certain measure or manipulation which increases trust in the theory (Stroebe and Starck 2014). The results showed once more that participants with a weak environmental identity were likely to feel licensed whereas participants with a strong environmental identity were unlikely to feel licensed. Together, these studies show that purchasing a product advertised via green advertising may have negative post-purchase effects and might lead to lower environmental concern and lower environmentally friendly behavioural intentions. Importantly, this only occurs for people with a weak environmental identity.

Theoretical contributions and practical implications

These findings are an important addition to the current green advertising literature, which mainly investigates whether green advertising is effective and in what circumstances it is especially effective (e.g., Atkinson and Rosenthal 2014; Bickart and Ruth 2012; Chan 2000; Green and Pelozo 2014; Hartmann and Apaolaza-Ibáñez 2009; Kareklas et al. 2012, 2014; Kong and Zhang 2013; Schuhwerk and Lefkoff-Hagius 1995; Steinhart et al. 2013; Tucker et al. 2012; Yoon et al. 2016). Our findings show that it is also important to investigate the post-purchase effects of green advertising, as these may not always constitute positive post-purchase effects. This is especially important as consumers often make sequential decisions. For example, when grocery shopping, people first have to decide whether to purchase locally grown or flown in fruit, then whether to choose beef or a meat substitute, and finally, whether to buy organic or non-organic chocolate. Our research shows that for some people, the choice for the locally grown fruit may actually decrease the chance of buying the meat substitute. Future research in green advertising and green claims could, therefore, investigate how to increase green consumption in the long run. For example, by investigating how licensing effects may be prevented. This study also adds to the current green advertising literature by once more showing that consumer characteristics, such as environmental identity, are important when studying green advertising (Schmuck

et al. 2018; Schuhwerk and Lefkoff-Hagius 1995). Finally, it adds to the green advertising literature that shows that green advertising might not always be positive for the environment, such as in the case of greenwashing (Schmuck et al., 2018).

There is a body of research suggesting that licensing effects will prevail after an initial moral act, such as purchasing green products (e.g., Khan and Dhar 2006; Mazar and Zhong 2010; Monin and Miller 2001; Sachdeva et al. 2009), but also a body of research suggesting that consistency effects will prevail after an initial moral act (e.g., Burger and Caldwell 2003; Freedman and Fraser 1966; Gawronski and Strack 2012; Steele 1988). So far, it was not clear when to expect licensing or consistency effects. These studies uncover identity as an important moderator for expecting licensing versus consistency effects. These findings also fit with research that has been trying to disentangle when licensing effects occur and when not, as previous studies did show circumstances in which licensing may be less or more likely (Conway and Peetz 2012; Gneezy et al. 2012; Young et al. 2012). For example, research showed that when people think of recent moral behaviours (i.e., in a concrete mindset), licensing effects are more likely to occur, whereas when people think of distant moral behaviours (i.e., in an abstract mindset) consistency effects are more likely to occur (Conway and Peetz 2012). Importantly, when in an abstract mindset, people are more likely to interpret their behaviour in terms of their identity (Conway and Peetz 2012). These findings thus fit our theorizing: when people are in an abstract mindset, they are more likely to interpret their behaviour in terms of their identity, and are more likely to behave in a consistent manner (i.e., consistency effect rather than licensing effect; Conway and Peetz 2012).

Similarly, research shows that consistency effects (rather than licensing effects) within the moral domain are more likely when people performed costly behaviours (Gneezy et al. 2012). It has been suggested that when performing costly behaviours, people are more likely to interpret this behaviour in terms of their identity as costly behaviours serve as a signal of one's identity (Gneezy et al. 2012). In line with this, a study showed that when participants performed costly pro-social behaviour (i.e., purchasing a picture of themselves in a ride in an amusement park of which half price was going to charity), they were more likely to behave pro-social again (i.e., buy gifts for others rather than for themselves, Gneezy et al. 2012). This finding is in line with our theorizing, as once people interpret behaviour as being part of their identity they are less likely to show licensing effects. As such, our results extend, support, and unify previous research by revealing identity as the underlying mechanism in expecting licensing effect or consistency effects.

Our results also provide tools for preventing these post-purchase effects by uncovering environmental identity as an important moderator. When it concerns, for example, instigating long-lasting environmentally friendly consumption behaviour, it is important that consumers come to see themselves as a green consumer as then they will be less likely to show licensing effects. Research suggests that merely making consumers consciously aware that they just behaved in a green manner and thus *are* green consumers may actually decrease the likelihood of licensing effects. Young et al. (2012) propose that when people are made aware that they are 'do-gooders' by nature, they are more likely to actually behave well when faced with an opportunity to do so.

Limitations and future research

Like all research, this research also has some limitations. First, the studies were conducted in the laboratory and online, rather than in a real-life setting, which might affect the generalizability of our findings. Importantly though, the effects found in previous laboratory and online studies concerning licensing show comparable effects to studies in a real-life setting (e.g., Hofmann et al. 2014; Jordan et al. 2011; Khan and Dhar 2006; Mazar and Zhong 2010; Meijers et al. 2015; Monin and Miller 2001; Sachdeva et al. 2009; Tiefenbeck et al. 2013). Moreover, a recent meta-analysis on the licensing effect found that the effects on hypothetical behaviour such as intentions and actual behaviour are comparable (Blanken et al. 2015). In sum, although the current studies were set in the laboratory or conducted online, we expect that comparable findings will emerge in a real-life setting. A second limitation is that, although the sample sizes of our studies are similar to most licensing studies, recent findings suggest that in order to obtain more statistical power, larger samples would be desirable (Blanken et al. 2015). So, for future research, it is important to replicate these findings by an independent research team with a high-powered test. Besides, in both studies, we used clothing brands, so it would be interesting to see whether the findings also extend to other product categories.

In addition, we did not measure education or income as demographical characteristics. It is unlikely that these demographics would have driven the effect, given that two experiments were conducted in which participants were randomly assigned to conditions and given that Study 1 made use of a university sample (which is rather homogenous in terms of education and income); however, it remains a limitations that we did not assess these. For future research, it would be interesting to measure a number of other demographics, like education, income, and political background, and test whether these affect the findings presented in this article. Finally, the Cronbach's α for behavioural intentions in Study 2, was slightly lower (0.67) than the common threshold of 0.70. When scales constitute less than 10 items, as was the case in this study, Cronbach's α is often lower than the threshold of 0.70 (Pallant 2001). Furthermore, we used a reversed item in the behavioural intentions scale. This has the upside of cross-checking answer validity, but also the downside of lowering the Cronbach's α as people are more likely to agree with statements in general (Krosnick and Presser 2010).

For future research, it could be interesting to test the effects of being exposed to green advertising versus purchasing a product advertised in green advertising. The current studies indicate that the purchase of such products enhances the likelihood of licensing effects for people with a weak environmental identity. In contrast, a study by Mazar and Zhong (2010) suggests that merely being exposed to green advertising might decrease the likelihood of licensing effects. That is, just being exposed to green advertising might not give people the feeling of being a moral person and as such license them to behave in a less environmentally friendly way, but might prime the norm of morality, making environmentally friendly behaviour more likely. Green advertising might thus have positive pre-purchase side effects, but negative post-purchase side effects.

Importantly, the findings show that for people with a strong environmental identity, such negative post-purchase side effects do not occur. In fact, the findings of Study 1 even showed that green advertising might have *positive* post-purchase effects, at least for people with a strong environmental identity. That is, participants with a strong environmental identity reported higher environmental concerns after purchasing a product advertised as green (vs. non-green). Study 2 does not show such a positive post-purchase effect for people with a strong environmental identity, instead, the intentions are similar after imagining purchasing a green or non-green advertised product. We can only speculate why there are these differences between studies 1 and 2 when it comes to the effect on people with a strong environmental identity. For example, in Study 1, the manipulation consisted of actual shopping behaviour, as participants were shopping for an outfit that they could actually receive, whereas in Study 2 participants had to imagine purchasing the green product. So in that sense, the manipulation of Study 1 might have been stronger. Alternatively, it could be that environmental concerns are more easily changed than environmental intentions, as they come earlier in the chain of effects. So while an enhancing effect for more cognitive and affective effects could become more easily visible, behavioural intentions might be driven by other variables as well (e.g., convenience and habits). Future research could investigate this in further detail.

Conclusions

Green advertising has taken a flight. Our results highlight that it is important to consider the possibility of paradoxical post-purchase effects when companies use green advertising, because consumers may feel licensed to lower their environmental concern and environmentally friendly behavioural intentions after purchasing a product advertised in a green advertisement. Importantly, these effects only occur for people with a weak environmental identity; consumers with a strong environmental identity do not show these licensing effects. Licensing effects may thus harm long-lasting environmentally friendly consumption, but not for consumers who regard green behaviour as part of their identity. A possible remedy for the negative consequences of licensing effects may, therefore, be to add communication strategies to a green advertisement that establish an environmental identity.

Notes

1. Green advertising may make use of textual cues, but also of visual cues to emphasize the green attributes of products, services, or companies (Tang et al. 2004; Teisl et al. 2002). We had two different green ads: one with the environmental information in textual cues and the other green advertisement was exactly the same but also comprised an eco-logo, as we were interested whether the presence of an eco-logo may produce different effects. We, however, found no statistical differences between the two green advertising conditions in Study 1 or in Study 2 or the manipulation check tests for Study 1 and Study 2. We, therefore, collapsed the two green advertising conditions into one single green advertising condition. Collapsing did not meaningfully affect the results.

2. We did not include manipulation checks in our studies. We did check whether the manipulations worked with separate tests, but it remains a limitation that they were not included in the main studies.
3. Since Study 1 was an explorative study, we included a number of DV measures. Next to environmental concern, we also measured environmental intentions, environmental decision making, and moral identity. For all measures, there were neither main effects nor interaction effects, all p values $>.220$.

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No potential conflict of interest was reported by the authors.

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